

## CLAIMS

I claim:

1. A method, comprising:
  - identifying one or more initiating network resources that present a transaction on a first cycle;
  - filtering out presented transactions from the arbitration process destined to target network resources that are currently not available to service a transaction;
  - implementing an arbitration process among the remaining presented transactions to select a presented transaction from an initiating network resource to an available target network resource that wins the arbitration; and
  - configuring segments of the pathways in an interconnect in the next cycle to establish a connection between the initiating network resource and the available target network resource that won the arbitration.
2. The method of claim 1, further comprising:
  - determining a destination associated with a target network resource for each presented transaction.
3. The method of claim 1, further comprising:
  - cross-referencing the presented transactions from the one or more initiating network resources with target network resources that are currently not available to service a transaction.

4. The method of claim 1, further comprising:

    sending control signals to control flip flops to configure segmentation of the pathways in the interconnect so that the control flip flops store the control information resulting from the arbitration process.

5. The method of claim 1, further comprising:

    configuring the segments of the pathways in the interconnect to pass a payload of information from the initiating network resource to the available target network resource while isolating other segments of the pathways in the network resource while isolating other segments of the pathways in the interconnect not part of the payload of information transfer between the initiator network resource and the available target network resource.

6. The method of claim 1, further comprising:

    transitioning voltage levels on the segments of the pathways in the interconnect to communicate the payload of information to the available target network resource in a cycle after the arbitration results are determined.

7. An apparatus, comprising:

    means for identifying one or more initiating network resources that present a transaction on a first cycle;  
    means for filtering out presented transactions from the arbitration process destine to target network resources that are currently not available to service a transaction;

means for implementing an arbitration process among the remaining presented transactions to select a presented transaction from an initiating network resource to an available target network resource that wins the arbitration; and

means for configuring segments of the pathways in an interconnect in the next cycle to establish a connection between the initiating network resource and the available target network resource that won the arbitration

8. The apparatus of claim 7, further comprising:

means for sending control signals to control flip flops to configure segmentation of the pathways in the interconnect so that the control flip flops store the control information resulting from the arbitration process.

9. The apparatus of claim 8, further comprising:

means for configuring the segments of the pathways in the interconnect to pass an payload of information from the initiating network resource to the available target network resource while isolating other segments of the pathways in the interconnect not part of the payload of information transfer between the initiator network resource and the available target network resource.

10. The apparatus of claim 9, further comprising:

means for transitioning voltage levels on the segments of the pathways in the interconnect to communicate the payload of information to the available target network resource in a cycle after the arbitration results are determined.

11. An interconnect coupled to a plurality of initiator network resources as well as a plurality of target network resources, wherein the interconnect comprises:
  - a first stage of circuitry to receive incoming transactions from the plurality of initiator network resources;
  - a second stage of circuitry to pass outgoing transactions to the plurality of target network resources connecting to the interconnect; and
  - an arbitration controller to arbitrate transactions from the plurality of initiator network resources destined to one or more of the target network resources, wherein the target network resources supply their availability to service a transaction to the arbitration controller, and the arbitration controller to implement an arbitration policy that filters out transactions from an arbitration process those transactions from initiator network resources destined to target network resources that are currently not available to service a transaction.
12. The interconnect of claim 11, wherein the arbitration controller to generate results of the arbitration policy in a first cycle and the first stage of circuitry and the second stage of circuitry are configured to pass a transaction between a first initiator network resource and a first available-target network resource on a second cycle.

13. The interconnect of claim 11, further comprises:
  - a plurality of segmented pathways within the interconnect, wherein each segmented pathway is independently controllable to pass information from the initiating network resource to the available target network resource while isolating other segments of the pathways in the interconnect not part of the information transfer between the initiating network resource and the available target network-resource.
14. The interconnect of claim 11, wherein the first stage of circuitry to route an incoming payload of information to a central point and the second stage of circuitry to route the payload of information from the central point.
15. The interconnect of claim 11, wherein a first initiator network resource may be an Intellectual Property core on a system on a chip.
16. A machine-readable medium having stored thereon information representing the apparatus of claim 11.
17. The interconnect of claim 11, wherein the first stage of circuitry and the second stage of circuitry are configured to receive results of the arbitration policy and to transfer a transaction between a first initiator network to a first available-target network resource in a same cycle.

18. An interconnect coupled to a plurality of initiator network resources as well as a plurality of target network resources, wherein the interconnect comprises:

circuitry to receive transactions from the plurality of initiator network resources, wherein the circuitry to receive transactions includes one or more filter units and one or more splitter units to configure segmented pathways in the interconnect; and

an arbitration controller to generate control signals for the filter units and the splitter units to configure a connection pathway in the interconnect between a first initiator network resource and a first target network resource, wherein the configured connection pathway to allow an information transfer between the initiator network-resource and the target network-resource while isolating other segments of the pathways in the interconnect not part of the information transfer between the first initiator network resource and the first target network-resource.

19. The apparatus of claim 18, wherein the circuitry to receive transactions further comprises:

a first stage of circuitry to receive incoming transactions from the plurality of initiator network resources and the first stage includes at least one or more of the filter units to configure segmented pathways in the interconnect; and

a second stage of circuitry to pass outgoing transactions to target network resources connecting to the interconnect and the first stage includes at least one or more of the splitter units to configure segmented pathways in the interconnect.

20. The apparatus of claim 18, wherein the arbitration controller to implement the arbitration process in an initial cycle while the first stage of circuitry to receive transactions to allow the information transfer to occur in the next cycle.
21. The apparatus of claim 18, wherein the circuitry to receive transactions further comprises one or more merge units, a first control flip flop coupled to a first splitter unit, and a second control flip flop coupled to a first filter unit.
22. The apparatus of claim 18, wherein the arbitration controller to implement an arbitration policy that filters out transactions from the arbitration process serviced by a target network resource when the target network resource is not ready to service transactions.
23. The apparatus of claim 18, wherein the apparatus of claim 18 is located in a system on a chip.
24. A machine-readable medium having stored thereon information representing the apparatus of claim 18.
25. The apparatus of claim 20, wherein the arbitration controller to implement the arbitration process in an initial cycle while the first stage of circuitry to receive

transactions to allow the information transfer to occur in the next cycle to increase the maximum operating clock speed of the apparatus.

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